

CLAIMS

1. (original) A method for automatically setting output power levels of optical transmitters in an optical communications arrangement having at least a first and a second node, wherein the transmitter of the first node is optically coupled to a receiver in the second node, and the transmitter in the second node is optically coupled to a receiver in the first node, comprising:

transmitting respective sequences of power-level messages from the transmitters to the receivers, wherein each message in a sequence includes output-power code that indicates an output power level used by the transmitter to transmit the message, and each transmitter uses increasing power levels to transmit each power-level message in the sequence;

detecting power levels at which the power-level messages are received by the receivers; and

when a receiver receives a power-level message at a power level that satisfies a selected power level, automatically setting an output power level of the coupled transmitter to the output power level indicated in the power-level message.

2. (original) The method of claim 1, further comprising at each receiver:

detecting a power level at which a power-level message is first received;

setting the selected power level as a function of the power level at which a power-level message is first received.

3. (original) The method of claim 2, further comprising setting the selected power level a selected quantity above the power level at which the power-level message is first received.

4. (original) The method of claim 1, wherein a transmitter and a receiver in the same node are local relative one to another, a transmitter and a receiver in different nodes are remote relative one to another, and the power-level message that satisfies the selected power level is a satisfactory power-level message, further comprising:

providing a receiver-initialization complete signal to the local transmitter when the local receiver receives the satisfactory power-level message;

transmitting, in response to the receiver-initialization complete signal, a transmit-initialization-complete message from the local transmitter to the remote receiver for setting the output power level of the remote transmitter, wherein the transmit-initialization-complete message includes the output-power code from the satisfactory power-level message.

5. (original) The method of claim 4, further comprising:

providing a transmit-initialization-complete signal from the remote receiver to the remote transmitter in response to receipt of the transmit-initialization-complete message; and

setting, in response to the transmit-initialization-complete signal, the output power level of the remote transmitter to the power level indicated by the output-power code in the transmit-initialization-complete message.

6. (original) The method of claim 5, further comprising at each receiver:

detecting a power level at which a power-level message is first received;

setting the selected power level as a function of the power level at which a power-level message is first received.

7. (original) The method of claim 6, further comprising setting the selected power level a selected quantity above the power level at which the power-level message is first received.

8. (original) An apparatus for automatically setting output power levels of optical transmitters in an optical communications arrangement having at least a first and a second node, wherein the transmitter of the first node is optically coupled to a receiver in the second node, and the transmitter in the second node is optically coupled to a receiver in the first node, comprising:

means for transmitting respective sequences of power-level messages from the transmitters to the receivers, wherein each message in a sequence includes output-power code that indicates an output power level used by the transmitter to

transmit the message, and each transmitter uses increasing power levels to transmit each power-level message in the sequence;

means for detecting power levels at which the power-level messages are received by the receivers;

means, responsive to receipt by a receiver of a power-level message at a power level that satisfies a selected power level, for automatically setting an output power level of the coupled transmitter to the output power level indicated in the power-level message.

9. (original) A circuit arrangement for automatically setting output power levels of optical transmitters in an optical communications arrangement, comprising:

a first node having a first transmitter, a first receiver, and a first control circuit coupled to the first transmitter and to the first receiver;

a second node having a second transmitter, a second receiver, and a second controller coupled to the second transmitter and to the second receiver, wherein the second transmitter is optically coupled to the first receiver of the first node, and the second receiver is optically coupled to the first transmitter of the first node;

wherein the first and second transmitters are configured to transmit respective sequences of power-level messages to the second and first receivers responsive to the first and second control circuits, each power-level message in a sequence transmitted at an increasing power level and including an output-power code that indicates an output power level used to transmit the message;

wherein the first and second receivers are configured to detect power levels at which the power-level messages are received; and

wherein the first and second control circuits are configured to determine when power levels at which power-level messages are received satisfy respective, selected power levels and automatically set output power levels of the first and second transmitters to power levels indicated in the power-level messages.

10. (original) The circuit arrangement of claim 9, wherein a power-level message that satisfies a selected power level is a satisfactory power-level message,

wherein the first receiver is further configured to provide a first receiver-initialization complete signal to the first transmitter when the first

receiver receives a first satisfactory power-level message, and the second receiver is further configured to provide a second receiver-initialization complete signal to the second transmitter when the second receiver receives a second satisfactory power-level message; and

wherein the first transmitter is further configured to transmit, in response to the first receiver-initialization complete signal, a first transmit-initialization-complete message to the second receiver for setting the output power level of the second transmitter, the first transmit-initialization-complete message including the output-power code from the first satisfactory power-level message, and the second transmitter is further configured to transmit, in response to the second receiver-initialization complete signal, a second transmit-initialization-complete message to the first receiver for setting the output power level of the first transmitter, the second transmit-initialization-complete message including the output-power code from the second satisfactory power-level message.

11. (original) The circuit arrangement of claim 10,

wherein the first receiver is configured to provide a first transmit-initialization-complete signal to the first control circuit in response to receipt of the second transmit-initialization-complete message, and the second receiver is configured to provide a second transmit-initialization-complete signal to the second control circuit in response to receipt of the first transmit-initialization-complete message; and

wherein the first control circuit is configured to set, in response to the first transmit-initialization-complete signal, the output power level of the first transmitter to the power level indicated by the output-power code in the second transmit-initialization-complete message, and the second control circuit is configured to set, in response to the second transmit-initialization-complete signal, the output power level of the second transmitter to the power level indicated by the output-power code in the first transmit-initialization-complete message.